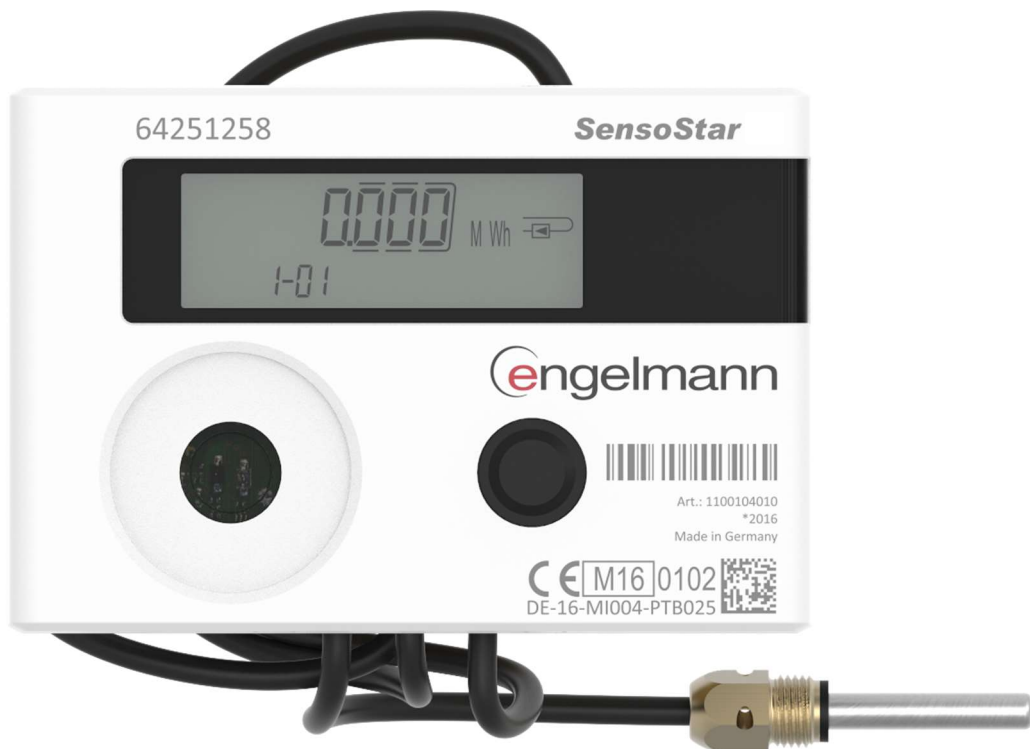


## Engelmann Compact Heat Meter

# SensoStar Q

Multi-jet flow sensor for inline installation points



- Detection of back flow
- Measuring cycle temperature, dynamic: 2 / 60 s
- Outlet flow and inlet flow can be set on site
- Detachable calculator unit, pulse cable length 50 cm (optional)
- Communication interfaces:
  - wireless M-Bus;
  - wireless M-Bus + 3 pulse inputs;
  - M-Bus;
  - M-Bus + 3 pulse inputs;
  - Modbus RTU;
  - LoRaWAN + 3 pulse inputs;
  - 1 pulse output;
  - 2 pulse outputs

## Technical data:

### Flow sensor

Measuring method	bidirectional inductive scanning system				
Sizes	Nominal flow $q_p$	$m^3/h$	0,6	1,5	2,5
	Low flow threshold	$l/h$	3,5	4	5,5
	Minimum flow $q_i$	$l/h$	12	30	50
	Maximum flow $q_s$	$m^3/h$	1,2	3	5
	Pressure drop $\Delta p$ at $q_p$	bar	0,1	0,2	0,24
	Pressure drop $\Delta p$ at $q_s$	bar	0,4	0,74	0,92
	Nominal diameter	mm	DN 15	DN 15	DN 20
	Thread	inch	G3/4B	G3/4B	G1B
	Length	mm	110	110	130
	Dynamic range $q_i/q_p$		1:50	1:50	1:50
	Accuracy class (MID)		class 3		
	Nominal pressure PN	bar	16		
	Temperature range medium heat	$^{\circ}C$	15 - 90		
	Temperature range medium cooling ( $q_p$ 1,5 and $q_p$ 2,5)	$^{\circ}C$	5 - 50		
	Point of installation		outlet flow and inlet flow; can be set when the amount of energy is still $\leq 10$ kWh		
	Mounting position		any position		
	Protection class		IP65		
	Medium		water; optional, without approval*: water with a propylene glycol or ethylene glycol percentage rate of 20 %, 30 %, 40 % or 50 % (* type and concentration of glycol can be set at any time)		

### Calculator unit

Temperature range medium heat	$^{\circ}C$	0 – 150
Temperature range medium cooling ( $q_p$ 1,5 and $q_p$ 2,5)	$^{\circ}C$	0 – 50
Ambient temperature in the field	$^{\circ}C$	5 – 55 at 95 % relative humidity
Transport temperature	$^{\circ}C$	-25 – 70 (for maximal 168 h)
Storage temperature	$^{\circ}C$	-25 – 55
Temperature difference range $\Delta\theta$ heat	K	3 – 100
Temperature difference range $\Delta\theta$ cooling	K	-3 – -50
Minimum temperature difference $\Delta\theta$ heat	K	> 0,05
Minimum temperature difference $\Delta\theta$ cooling	K	< -0,05
Minimum temperature difference $\Delta\theta_{HC}$ heat / cooling	K	> 0,5 / < -0,5
Resolution temperature	$^{\circ}C$	0,01
Measuring cycle temperature; dynamic	s	2 / 60; using a power pack: 2 s permanent
Display		LCD - 8 digits + special characters
Decimal places		up to 3 after comma
Units		MWh, kW, $m^3$ , $m^3/h$ (kWh, GJ, MMBTU, Gcal); unit of energy can be set when the amount of energy is still $\leq 10$ kWh
Interfaces		optical interface (M-Bus protocol); optional: wireless M-Bus; wireless M-Bus + 3 pulse inputs; M-Bus; M-Bus + 3 pulse inputs; Modbus RTU; LoRaWAN + 3 pulse inputs; 1 pulse output; 2 pulse outputs

Power supply		exchangeable 3 V lithium battery; all types prepared for 3 V power pack (input voltage 230 V / 24 V)
Estimated lifetime	years	10 (no option: 1 pulse output); 6+1
Data storage		nonvolatile memory
Reading dates		selectable yearly reading date; 15 monthly and semimonthly values via display or wireless M-Bus (compact mode); 24 monthly and semimonthly values via optical interface or M-Bus can be set individually; adding up energy or time
2 tariff registers		flow, power and temperatures (inlet, outlet, $\Delta\theta$ ), plus the respective maximum values of the last 15 months
Storage of maximum values		IP65
Protection class		yes
CE		EN 1434
EMC		

**Temperature sensors** (2-wire technique)

Platinum precision resistor		Pt 1000
Diameter	mm	5; 5,2; 6; AGFW 27,5; 38; needle sensor 3,5 x 75
Length of cable	m	1,5; 3; 6
Installation		asymmetrical; symmetrical

**Weights**

Weight (basic version, kg)	q <sub>p</sub> 0,6 / q <sub>p</sub> 1,5	q <sub>p</sub> 2,5
Calculator not detachable	0,875	0,955
Calculator detachable	0,915	0,995

**Dimensions**

Pulse cable length (only separable version)	m	0,50
Calculator housing (H x W x D)	mm	75 x 110 x 34,5
Thread	q <sub>p</sub> 0,6 / q <sub>p</sub> 1,5: G3/4", DN 15	q <sub>p</sub> 2,5: G1", DN 20

(on the right the separable version with a detachable calculator)

